REMARKS

Claims 21-22, 29-35 and 37-41 are canceled. Claim 36 is amended. No new matter is added as the originally-filed application supports the amendment language at, for example, pages 8-9 and Fig. 6. New claims 42-44 are added. No new matter is added as the originally-filed application supports the new claims at, for example, Fig. 6. Claims 36 and 42-44 are pending in the application.

Claim 36 stands rejected under 35 U.S.C. §102(b) as being anticipated by Chen et al. (U.S. Patent No. 5,472,896). Claim 36 also stands rejected under 35 U.S.C. §103(a) as being unpatentable over Kuroda (U.S. Patent No. 5,986,312) in view of Ilg et al. (U.S. Patent No. 6,130,145).

Claim 36 is amended to recite a metal-silicide layer comprising a Group III dopant or a Group V dopant provided to a concentration of at least about 1 x 10^{18} ions/cm^3. The Examiner correctly states that Chen fails to teach a concentration of dopants in the metal-silicide layer of at least about 1 x 10^{18} ions/cm^3 (page 5 of paper no. 14). The Examiner correctly states that Kuroda fails to teach a concentration of dopants in the metal-silicide layer of at least about 1 x 10^{18} ions/cm^3 (page 7 of paper no. 14). Consequently, Chen and Kuroda, singularly or in combination, fail to teach a positively recited limitation of claim 36, and therefore, claim 36 is allowable over Chen and Kuroda.

However, the Examiner provides IIg to teach the limitation of a concentration of dopants in the metal-silicide layer of at least about 1 x 10^{18} ions/cm^3 (pages 5 and 7 of paper no. 14). The Examiner states it would be obvious to modify the structure as taught by Chen and Kuroda, and then provides the same motivational rationale for combining IIg with either Chen and Kuroda. The motivational rationale is stated as, "in order to lower the resistance of the metal-silicide layer" (pages 6-7 of paper no. 14). However, such a motivational rationale is improper as a basis for combining IIg with either Chen and Kuroda because such is contrary to Federal Circuit law and MPEP authority.

The Examiner is respectfully reminded that "[p]referably the Examiner's explanation should be such that it provides that impetus necessary to cause one skilled in the art to combine the teachings of the references to make the proposed modification." *Ex Parte Levengood,* 28 USPQ2d, 1300, 1301, Footnote 2, (Bd. Pat. App. and Inter. 1993) (citations omitted). Regarding the combination of IIg and Chen, IIg teaches the purpose for doping a metal silicide layer is to "increase[] the tendency that it will be deposited in its amorphous state" (col. 4, lns. 42-45). Chen teaches the exact same purpose for doping a metal silicide layer, transforming the metal silicide layer from its crystalline form into its amorphous form by an ion implantation (col. 3, lns. 21-26 and 43-48; col. 5, lns. 20-25). Accordingly, the teachings of IIg are redundant to the teachings of Chen for doping the metal silicide layer, and therefore, one skilled in the art with the Chen reference would not look to IIg for additional teachings to what is already

understood from the teachings of Chen. There is no fair or reasonable explanation that the Examiner can present that provides that impetus necessary to cause one skilled in the art to combine the teachings of the references to make the proposed modification as suggested by the above authority. For at least this reason, the motivational rationale for combining Chen and Ilg does not exist and any obviousness rejection based on such combination must fail.

Moreover, since the Chen and Ilg teach the same purpose for doping a metal silicide layer, the Examiner is simply suggesting that the references can be combined, and therefore, it is obvious to do so. However, such reasoning is contrary to Federal Circuit law. The Examiner is respectfully reminded that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. MPEP §2143.01 (8th edition) *citing In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so". 916 F.2d at 682, 16 USPQ2d at 1432; MPEP §2143.01; See also *In re Finch,* 972 F.2d, 1260, 23 USPQ2d, 1780 (Fed. Cir. 1992). Since the teachings of Chen and Ilg are redundant, no reasonable argument for the desirability of the combination can be presented, and pursuant to the above authority, the combination of art is not obvious and must fail. For this additional reason, any obviousness rejection based on the combination of Chen and Ilg is improper and must fail.

Regarding the combination of IIg and Kuroda, Kuroda does not teach or suggest that there is any resistivity problem of the metal silicide layer 33 formed in the gate electrode of Figs. 1-2. That is, since there is no teaching to a problem with the resistivity of the metal silicide layer 33, the Examiner can not assume that such metal silicide layer 33 needs to lower its resistivity. The opposite assumption would be just as valid, that is, the metal silicide layer 33 is well suited for the purposes of the Kuroda invention, and therefore, there is no reasonable or fair argument for an impetus necessary to cause one skilled in the art to combine the teachings of the references to make the proposed modification to the Kuroda invention. For at least this reason, any obviousness rejection based on the combination of Kuroda and IIg is improper and must fail.

Moreover, even assuming the Examiner's first assumption is true, a reasonable argument for combining IIg with Kuroda would require a second assumption. That second assumption would be that the recited dopant concentration of at least about 1×10^{18} ions/cm^3 recited in claim 36 would increase the dopant already in the metal silicide layer 33 of the Kuroda invention. Basing a rejection on alleged teachings of the art wherein the argument stands on one assumption based on another assumption would have to be the antithesis of a teaching, contrary to a proper obviousness rejection. For this additional reason, any obviousness rejection based on the combination of Kuroda and IIg is improper and must fail.

Since no fair or reasonable motivational rationale can be presented for combining IIg with either Chen and Kuroda, a proper rejection based on the art of record has not been presented against claim 36. Therefore, claim 36 is allowable and Applicant respectfully requests allowance of claim 36 in the next office action.

New claims 42-44 depend from independent claim 36, and therefore, are allowable for the reasons discussed above with respect to the independent claim, as well as for their own recited features which are not taught or shown by the art of record.

This application is now believed to be in immediate condition for allowance, and action to that end is respectfully requested. If the Examiner's next anticipated action is to be anything other than a Notice of Allowance, the undersigned respectfully requests a telephone interview prior to issuance of any such subsequent action.

Respectfully submitted,

Dated: 12-27-02

By: _____

D. Brent Kenady
Reg. No. 40,045

Application Serial No. 09/875,501
Filing Date ..... JUNE 4, 2001
Inventor ..... Klaus Florian Schuegraf
Assignee ..... Micron Technology, Inc.
Group Art Unit 2815
Examiner ..... Edgardo Ortiz
Attorney's Docket No. MI22-1741
Title: Methods for Forming Wordlines, Transistor Gates and Conductive Interconnects, and Wordline, Transistor Gate, and Conductive Int

VERSION WITH MARKINGS TO SHOW CHANGES MADE ACCOMPANYING RESPONSE TO AUGUST 27, 2002 OFFICE ACTION

In the Claims

The claims have been amended as follows. Underlines indicate insertions and ~~strikeouts~~ indicate deletions.

36. (Amended) A conductive line comprising:

a polysilicon layer supported by a substrate;

a doped metal-silicide layer supported by the polysilicon layer, the metal-silicide layer comprising a Group III dopant or a Group V dopant provided to a concentration of at least about 1 x 10^{18} ions/cm^3; and

a silicon-dioxide-containing dopant barrier layer elevationally over the metal-silicide layer and substrate, and the barrier layer against only the metal-silicide layer with respect to portions of the substrate laterally outward of ~~and~~ the metal-silicide layer.

-END OF DOCUMENT-

Form PTO-1449

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

LIST OF ART CITED BY APPLICANT

(Use several sheets if necessary)

ATTY. DOCKET NO.	SERIAL NO.
MI22-1741	Filed Herewith
APPLICANT: Klaus Florian Schuegraf et al.	
FILING DATE: Filed Herewith	GROUP: Unknown

U.S. PATENT DOCUMENTS

*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
EO	AA	5,425,392	06/95	Thakur et al.			
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation Yes	Translation No
	AL							

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)

	AK		Taishi Kubota et al.; "The Effect of the Floating Gate/Tunnel SiO_2 Interface on FLASH Memory Data Retention Reliability"; 1994; 2 pages
	AL		Shoue Jen Wang et al.; "Effects of Poly Depletion on the Estimate of Thin Dielectric Lifetime"; IEEE Electron Device Letters, Vol. 12, No. 11,
			November 1991; pp. 617-619
	AM		Klaus F. Schuegraf et al.; "Impact of Polysilicon Depletion in Thin Oxide MOS Technology"; 1993; pp. 86-88
	AN		E. H. Snow et al.; "Polarization Phenomena and Other Properties of Phosphosilicate Glass Films on Silicon"; Journal of the Electrochemical
			Society, March 1966; pp. 263-269

EXAMINER: [signature] DATE CONSIDERED: 12/2/01

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.